

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner
 US Department of Commerce
 United States Patent and Trademark
 Office, PCT
 2011 South Clark Place Room
 CP2/5C24
 Arlington, VA 22202
 ETATS-UNIS D'AMERIQUE
 in its capacity as elected Office

Date of mailing (day/month/year)
 06 March 2001 (06.03.01)

International application No.
 PCT/GB00/02256

International filing date (day/month/year)
 21 June 2000 (21.06.00)

Applicant's or agent's file reference
 SMR/P73442PC

Priority date (day/month/year)
 21 June 1999 (21.06.99)

Applicant

REGAN, Timothy, James

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:
 05 January 2001 (05.01.01)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO
 34, chemin des Colombettes
 1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

Zakaria EL KHODARY

Telephone No.: (41-22) 338.83.38

PATENT COOPERATION TREATY

PCT

INFORMATION CONCERNING ELECTED
OFFICES NOTIFIED OF THEIR ELECTION

(PCT Rule 61.3)

From the INTERNATIONAL BUREAU

To:

RAYNOR, Simon, Mark
Urquhart-Dykes & Lord
Midsummer House
411C Midsummer Boulevard
Central Milton Keynes MK9 3BN
ROYAUME-UNI

Date of mailing (day/month/year) 06 March 2001 (06.03.01)		
Applicant's or agent's file reference SMR/P73442PC		IMPORTANT INFORMATION
International application No. PCT/GB00/02256	International filing date (day/month/year) 21 June 2000 (21.06.00)	
Applicant REGAN, Timothy, James		Priority date (day/month/year) 21 June 1999 (21.06.99)

1. The applicant is hereby informed that the International Bureau has, according to Article 31(7), notified each of the following Offices of its election:

AP : GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW
EP : AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE
National : AU, BG, CA, CN, CZ, DE, IL, JP, KP, KR, MN, NO, NZ, PL, RO, RU, SE, SK, US

2. The following Offices have waived the requirement for the notification of their election; the notification will be sent to them by the International Bureau only upon their request:

EA : AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
OA : BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
National : AE, AG, AL, AM, AT, AZ, BA, BB, BR, BY, BZ, CH, CR, CU, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IN, IS, KE, KG, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MW, MX, MZ, PT, SD, SG, SI, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW

3. The applicant is reminded that he must enter the "national phase" before the expiration of 30 months from the priority date before each of the Offices listed above. This must be done by paying the national fee(s) and furnishing, if prescribed, a translation of the international application (Article 39(1)(a)), as well as, where applicable, by furnishing a translation of any annexes of the international preliminary examination report (Article 36(3)(b) and Rule 74.1).

Some offices have fixed time limits expiring later than the above-mentioned time limit. For detailed information about the applicable time limits and the acts to be performed upon entry into the national phase before a particular Office, see Volume II of the PCT Applicant's Guide.

The entry into the European regional phase is postponed until 31 months from the priority date for all States designated for the purposes of obtaining a European patent.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. (41-22) 740.1435	Authorized officer: Zakaria EL KHODARY Telephone No. (41-22) 338.83.38
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PATENT COOPERATION TREATY

PCT

From the INTERNATIONAL BUREAU

NOTICE INFORMING THE APPLICANT OF THE
COMMUNICATION OF THE INTERNATIONAL
APPLICATION TO THE DESIGNATED OFFICES

To:

RAYNOR, Simon, Mark
Urquhart-Dykes & Lord
Midsummer House
411C Midsummer Boulevard
Central Milton Keynes MK9 3BN
ROYAUME-UNI

(PCT Rule 47.1(c), first sentence)

09 JAN 2001

INFORMATION'S & LOG

Date of mailing (day/month/year) 28 December 2000 (28.12.00)		
Applicant's or agent's file reference SMR/P73442PC		
IMPORTANT NOTICE		
International application No. PCT/GB00/02256	International filing date (day/month/year) 21 June 2000 (21.06.00)	Priority date (day/month/year) 21 June 1999 (21.06.99)
Applicant REGAN, Timothy, James		

1. Notice is hereby given that the International Bureau has communicated, as provided in Article 20, the international application to the following designated Offices on the date indicated above as the date of mailing of this Notice:
AG,AU,BZ,DZ,KP,KR,MZ,US

In accordance with Rule 47.1(c), third sentence, those Offices will accept the present Notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s).

2. The following designated Offices have waived the requirement for such a communication at this time:

AE,AL,AM,AP,AT,AZ,BA,BB,BG,BR,BY,CA,CH,CN,CR,CU,CZ,DE,DK,DM,EA,EE,EP,ES,FI,GB,GD,GE,GH,GM,HR,HU,ID,IL,IN,IS,JP,KE,KG,KZ,LC,LK,LR,LS,LT,LU,LV,MA,MD,MG,MK,MN,MW,MX,NO,NZ,OA,PL,PT,RO,RU,SD,SE,SG,SI,SK,SL,TJ,TM,TR,TT,TZ,UA,UG,UZ,VN,YU,ZA,ZW
The communication will be made to those Offices only upon their request. Furthermore, those Offices do not require the applicant to furnish a copy of the international application (Rule 49.1(a-bis)).

3. Enclosed with this Notice is a copy of the international application as published by the International Bureau on 28 December 2000 (28.12.00) under No. WO/00/79595

REMINDER REGARDING CHAPTER II (Article 31(2)(a) and Rule 54.2)

If the applicant wishes to postpone entry into the national phase until 30 months (or later in some Offices) from the priority date, a demand for international preliminary examination must be filed with the competent International Preliminary Examining Authority before the expiration of 19 months from the priority date.

It is the applicant's sole responsibility to monitor the 19-month time limit.

Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination.

REMINDER REGARDING ENTRY INTO THE NATIONAL PHASE (Article 22 or 39(1))

If the applicant wishes to proceed with the international application in the national phase, he must, within 20 months or 30 months, or later in some Offices, perform the acts referred to therein before each designated or elected Office.

For further important information on the time limits and acts to be performed for entering the national phase, see the Annex to Form PCT/IB/301 (Notification of Receipt of Record Copy) and Volume II of the PCT Applicant's Guide.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer J. Zahra
Facsimile No. (41-22) 740.14.35	Telephone No. (41-22) 338.83.38

CORRECTED
VERSION

PATENT COOPERATION TREATY



PCT

REC'D 15 OCT 2001

WIPO PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference SMR/P73442PC		FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/GB00/02256	International filing date (day/month/year) 21/06/2000	Priority date (day/month/year) 21/06/1999	
International Patent Classification (IPC) or national classification and IPC H01L27/02			
Applicant REGAN, Timothy James			
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 2 sheets.</p>			
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none">I <input checked="" type="checkbox"/> Basis of the reportII <input type="checkbox"/> PriorityIII <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicabilityIV <input type="checkbox"/> Lack of unity of inventionV <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statementVI <input type="checkbox"/> Certain documents citedVII <input type="checkbox"/> Certain defects in the international applicationVIII <input checked="" type="checkbox"/> Certain observations on the international application			
Date of submission of the demand 05/01/2001		Date of completion of this report 11.10.2001	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 eprmu d Fax: +49 89 2399 - 4465		Authorized officer Kusztelan, L Telephone No. +49 89 2399 2479 	

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB00/02256

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, pages:

1-25 as originally filed

Claims, No.:

1-15 as received on 25/09/2001 with letter of 21/09/2001

Drawings, sheets:

1/17-17/17 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB00/02256

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1
Inventive step (IS)	Yes: Claims	
	No: Claims	2-15
Industrial applicability (IA)	Yes: Claims	1-15
	No: Claims	

2. Citations and explanations
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB00/02256

Reference is made to the following documents:

D1: US-A-5 612 893 (HAO LING-HUI ET AL) 18 March 1997 (1997-03-18)

D2: PATENT ABSTRACTS OF JAPAN vol. 015, no. 492 (P-1287), 12 December 1991 (1991-12-12) & JP 03 211677 A (FUJITSU LTD;OTHERS: 01), 17 September 1991 (1991-09-17)

D3: US-A-5 856 754 (YAMASHITA KYOJI) 5 January 1999 (1999-01-05)

D4: GOLD S M ; BERNHARDT B ; BROWN R B : 'A quantitative approach to nonlinear process design rule scaling VLSI PROCEEDINGS 20TH ANNIVERSARY CONFERENCE ON ADVANCED RESEARCH IN VLSI / IEEE COMPUT. SOC, 24 March 1999 (1999-03-24), pages 99-112, XP000952431 Atlanta, GA, USA

Sections VIII & V

1. The Application does not meet the Requirements of Art.6 PCT because the amended claims are not clear.
 - 1.1 Claim 1 is not clear in that it does not include sufficient information for the skilled person to carry out the steps of the invention, cf. "selecting a scaling factor", i.e. it does not define how the scaling factor is to be calculated without violating the essential design rules, cf. Description pg.3 lines 13-18. Moreover, the claimed step of "adjusting each layer in the circuit for functionality ..." may involve a further scaling up or down of an entire layer after general scaling is complete, cf. pg.7 lines 16, pg.22 lines 10-11, pg.19 lines 18-23 etc, thus creating further uncertainty in view of the prior general reference to "selecting a scaling factor". In other words, it is not apparent what is intended by the claimed process which selects a single scaling factor, scales the entire circuit, then resizes entire layers, since the last step is not consistent with the essential step of selecting a single scaling factor, cf. the Applicant's response, Section 2.1, par.1. Accordingly the claim is not supported by the description.

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB00/02256

- 1.2 The wording of the claim 1 is ambiguous, Art.6 PCT; any order of process steps is possible (the steps may thus be performed in any combination, including that of simultaneously - e.g. like a layout engineer manually correcting a part of a shrink design).
- 1.3 Claim 3, in its generality, is unclear in that it is not apparent which scaling factors are "predetermined", how they are predetermined & in what sense they are predetermined: the layout engineer working on a data model of an integrated circuit will normally work on a predetermined layer thereof & it is not apparent, from the claim wording, what is meant by selecting the largest of some predetermined scaling factor.
- 1.4 The "transistor edge adjustment process" of claim 9 is not identified - all transistors have edges which will be adjusted in a shrink process.
2. In view of the unclarity of the claim, the present application does not satisfy the criteria set forth in Art. 33(2) & (3) PCT because the subject-matter of claim 1 is either not new or is not inventive in respect of prior art as defined in the regulations (Rule 64(1)-(3)).
- 2.1 In view of the lack of clarity of the claim, D1 discloses a method having all its steps. In particular, it is not apparent from the claim that a single scaling factor is selected. Accordingly D1 discloses:

A method of modifying a data model of an integrated circuit by electronic means (cf. Abstract), wherein the data model includes at least one layer of circuit components wherein the method including the steps of:

- selecting a scaling factor (col.1, lines 43-50 & col.2 lines 17-19)
- scaling the entire circuit represented by the data model according to the scaling factor (col.2 line 50 to col.3 line 16)
- adjusting each layer of the circuit for functionality (col.3 lines 24-34) and design rule compliance (col.3 lines 19-23)

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB00/02256

2.2 A further objection of lack of novelty of claim 1 is made with regard to D2, cf. Abstract, by inspection. In this regard, the Applicant's arguments that there is no adjustment of layers for functionality is not convincing since this is either implicit to any working design or is immediately apparent from the skilled person's general knowledge.

3. The present claims are not allowable for these reasons.

4. Regarding subject-matter of the Application which may meet the requirements of Arts.6,33(2),33(3) & Rule 67, it appears from a consideration of claims 1,3 & 4 & the Description pg.3 lines 13-18, pg.6 line 22 to pg.8 line 8 & pg.10 line 19 to pg.11 line 11, that the invention concerns a selection of the ideal scaling factor of a layout by calculating the largest of the three interconnect, via & transistor geometry ratios, then scaling the entire circuit in accordance with this ratio and then adjusting the circuit for functionality & design rule compliance. Such subject-matter appears neither to be known from or be obvious with respect to the available prior art.

INTERNATIONAL SEARCH REPORT

Int. Application No.

PCT/GB 00/02256

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H01L27/02 G06F17/50

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H01L G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

INSPEC, EPO-Internal, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	PATENT ABSTRACTS OF JAPAN vol. 015, no. 492 (P-1287), 12 December 1991 (1991-12-12) & JP 03 211677 A (FUJITSU LTD; OTHERS: 01), 17 September 1991 (1991-09-17)	1
Y	abstract	2-9, 12, 13, 15-17
Y	US 5 612 893 A (HAO LING-HUI ET AL) 18 March 1997 (1997-03-18)	2-8, 12, 13, 15-17
A	the whole document	1, 9
X	US 5 856 754 A (YAMASHITA KYOJI) 5 January 1999 (1999-01-05)	1
Y	column 1, line 39 - column 2, line 34	9
A		3, 5, 7, 8
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Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

12 October 2000

Date of mailing of the international search report

20/10/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Albrecht, C

INTERNATIONAL SEARCH REPORT

Int. Application No.
PCT/GB 00/02256

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GOLD S M ; BERNHARDT B ; BROWN R B : "A quantitative approach to nonlinear process design rule scaling VLSI " PROCEEDINGS 20TH ANNIVERSARY CONFERENCE ON ADVANCED RESEARCH IN VLSI / IEEE COMPUT. SOC, 24 March 1999 (1999-03-24), pages 99-112, XP000952431 Atlanta, GA, USA page 99, line 1 -page 106, line 12; figures 1-7	1-3,5-9, 12-17
A	US 5 200 807 A (EGUCHI KOJI) 6 April 1993 (1993-04-06) column 8, line 3 - line 17; figure 13	12,13
A	R.H. HAVEMANN, R.L. SMITH, S.A. EVANS, L.A. ARLEDGE, R.L. LOVE AND G.L. VARNELL: "Electron-beam fabrication of a 1.25um, 16-bit I2L" J. VAC.SCI.TECHNOL. / AMERICAN VACUUM SOCIETY, vol. 19, no. 4, December 1981 (1981-12), pages 901-904, XP000952394 the whole document	1,5,12, 15-17

INTERNATIONAL SEARCH REPORT

Information on patent family members

Int. Application No
PCT/GB 00/02256

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 03211677 A	17-09-1991	JP 2863239 B	03-03-1999
US 5612893 A	18-03-1997	WO 9517730 A	29-06-1995
		US 5625568 A	29-04-1997
US 5856754 A	05-01-1999	JP 9258843 A	03-10-1997
US 5200807 A	06-04-1993	JP 3142934 A	18-06-1991